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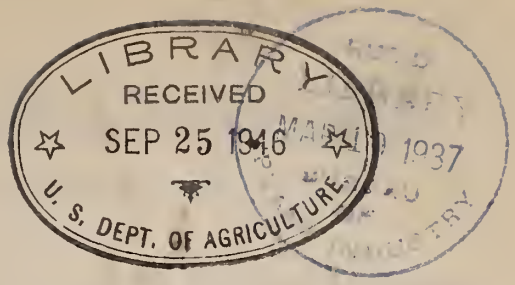

WEEKLY STATION REPORTS

OF THE DIVISION OF

DRY LAND AGRICULTURE

BUREAU OF PLANT INDUSTRY

U. S. DEPARTMENT OF AGRICULTURE

Not for publication without
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REPORT FOR THE MONTH OF JANUARY, 1937.

HAVRE:

January was the second coldest in station history, the monthly mean being 5° below zero, a departure of 19°. There were 27 days having minima of zero or lower. Cloudy, unsettled weather prevailed, with precipitation on 23 days. The measured snowfall amounted to 13.6 inches, or twice the average, but only 0.50 inch of melted snow was caught in the rain gauge. Approximately 2 feet of snow has fallen since December 25. The wind velocity average 10.1 miles on the 2-foot anemometer, exceeding all former January wind records. Under these conditions roads were blocked most of the time, and much difficulty has been experienced in traveling.

Station activities have centered chiefly on cattle feeding experiments, writing annual reports, and the employment of WPA labor in cleaning brush from creek bottom land. The cow lots receiving Russian thistles and a pound of soybean cake or cottonseed cake per day during the past six weeks appear to be getting along satisfactorily, only slight losses being reported at the end of a recent 28-day period.

Maximum temperature, 32°; minimum, -38°; precipitation, 0.50 inch.

JUDITH BASIN:

The month of January was one of the coldest recorded at this station. Temperatures below zero were recorded on 24 days of the month. The average minimum temperature of -11° has only been surpassed in the year 1916, when the average was -15°. The mean temperature for the month was 4°.

Precipitation in the form of snow was recorded on 16 days but only totaled 0.40 inch. Blowing was very severe, and most of this snow is piled in large drifts around buildings, trees, and fence rows. Stubble fields still retain snow to the height of the stubble.

Maximum temperature, 36°; minimum, -30°; precipitation, 0.40 inch.

HUNTLEY:

Contrasted with the mild weather during December, the month of January was decidedly wintry. Snow covered the ground throughout the month, although the total fall was light. Wind velocity was much below that of December and but little drifting of snow took place in January. Highways, feedlots, and yards were kept free from drifted snow with ease, and the movement of feeds and produce was uninterrupted.

Temperatures throughout the month were low. Sub-zero temperatures were recorded on all but 6 days of the month. On 5 days of the month the mercury did not rise above zero. The coldest period was from the 6th to the 9th with minima of -31, -42, -39, and -29°, respectively, for the 4 days.

Station work consisted of caring for livestock and report writing.

Maximum temperature, 39°; minimum, -42°; precipitation, 0.30 inch.

SHERIDAN:

While no extremely low temperatures were experienced during the month, such as occur a few times during most winters, below zero temperatures were recorded on 30 of the 31 days of the month, and the mean for January was the lowest yet recorded here for any month. There was no precipitation of consequence. Wind movement was slightly above the station average, and the little snow that lay on the ground was blown into drifts, leaving the most of the ground bare during the greater part of the month.

There was considerable shrinkage with livestock, and feed requirements were high. Small streams are freezing solid in many places, making a difficult situation for stock water in some places.

Maximum temperature, 37°; minimum, -25°; precipitation, 0.13 inch.
Mean temperature about 18° below station 20-year average.

DICKINSON:

A mean temperature of -6.8° in January was the coldest of record since the station was started. This was 17° below normal and 6.8° below January 1936, though much warmer than February 1936, when the mean was -12°. The minimum of -31° was not unusual for January, but the cold was persistent, only two days having a minimum above zero.

Precipitation of 0.41 inch was slightly below normal. Snowfall was measured at 5.6 inches. Strong winds on several days filled the air with the light fine snow which drifted badly. The highest drift in the trees is 8 feet high. Exposed fields are nearly bare. The weather was severe on livestock, which required considerable feed. Some losses were reported.

Maximum temperature, 32°; minimum, -31°; precipitation, 0.41 inch.

MANDAN:

Horticulture - The year of 1936 was one of adverse climatic extremes, temperatures ranging from -46° in February to 115° in July, both being all time records at this station. The year's precipitation of 6.43 inches was the lowest on record. Under these conditions, satisfactory fruit production could not be expected, and many fruit trees died. Interesting data were obtained on the ability of the different species and varieties to survive.

Most fruit trees suffered severe winter and drought or hot weather injury. Sunscald on apple trees was unusually severe, and most varieties failed to bear fruit. A few varieties of crabapples, including Dolgo, Florence, and Amur, stood out as being unusually hardy and drought resistant.

Plums were variable, the Japanese hybrids as a class not showing the ability to survive the bear fruit that was shown by the native varieties and some of the sandcherry hybrids. Cree, Compass, and some of the native selections were the only plums or plum hybrids to produce satisfactory crops. Cree is supposed to be a Japanese hybrid, but may be classed with the natives from the standpoint of quality, hardiness, and productiveness. The old Compass did far better than any of the new plum-sandcherry hybrids. Some of the new Mandan native selections looked very promising under the severe conditions.

Sandcherries survived winter temperatures, heat, and drought and bore fair crops of fruit, thereby indicating their value in the home fruit garden of this section.

Small fruits, including strawberries, raspberries, currants, and gooseberries, did not show much ability to survive or bear fruit under the conditions of 1936. All strawberries died. Only a few raspberries remain. Currants show a partial survival. All plants lost their leaves during the hot weather in July, but some plants put out a new set of leaves and are surviving in a weakened condition. Gooseberries appear to be the most drought resistant of the small fruits mentioned, but they also lost most of their leaves in July and are weak. None of the above small fruits produced fruit in 1936.

Such hardy grapes as Alpha and Beta survived and bore light crops of fruit where the vines were covered with soil during the winter, but many uncovered vines died. Selections of the native grape survived in good condition, even when not covered with soil, and bore fair crops of fruit.

Viburnums and Prunus glandulosa seedlings were not drought resistant and almost all plants of these species died. Prunus tomentosa, the Chinese cherry, has shown considerable ability to endure periods of drought, but fruit production has not been satisfactory.

The most hardy and drought resistant fruits were to be found among the native species. Besides the sandcherries and native plums and grapes mentioned above, Juneberries, chokecherries, and Golden currants survived cold, heat, and drought and produced fair crops of fruit.

Results in the cultural tests were irregular, as many trees have died and it is difficult to compare accurately the different blocks. However, the straw mulched (winter mulched) blocks in the "Hardiness Test" yielded highest and manured blocks lowest. The group system resulted in the highest average yield in the "Spacing Experiment", but this was largely due to Block 7 being located on superior soil. In general, results in this experiment and elsewhere on the station seemed to favor wide spacing. Light pruning gave best results in the pruning experiment. Neither the Hillside or Coulee orchards produced fruit in quantity and many of the trees died. Gooseberries and currants planted on contours in the west coulee are in much better condition than the same varieties in the regular variety test.

Results in the field were more disappointing than those at Mandan, as many cooperative plantings were completely killed out, and only a few remain in fair condition.

Potatoes were a failure from a practical standpoint, but Early Ohio and Warba did better than other varieties under test. 18-inch spacing of hills in the row resulted in higher yields than either 14-inch or 28-inch spacing.

Aside from a small yield of rhubarb, asparagus, and potatoes, vegetables were a complete failure during the 1936 season. Crops planted in April and May, with the exception of a poor stand of sweetcorn, failed to germinate until September. Transplanted crops, such as tomatoes and cabbage, survived after being established in the field but failed to produce a usable crop. Tomato plants in the breeding project made a fair growth, but failed to set a crop of fruits until it was too late for them to mature.

The grounds required diligent application of water and presented a fairly normal appearance. Early blooming perennials such as peonies, Iris, and bulbs including tulips and lillies, produced a good show, but late ones such as chrysanthemums suffered from excessive heat and were a complete failure.

The month of January 1937 was cold throughout. The station records show 30 days with minimum temperatures below zero, ranging from -3° to -31°. The mean temperature was -7.5°, the lowest of record for the station. The U. S. Weather Bureau at Bismarck reports a mean of -6° compared to -4° in 1936 and the lowest of -9° in 1875.

The snowfall during the month was 9.7 inches, and the precipitation was 0.86 inch. There were 19 days with precipitation ranging from a trace to 0.37 inch. There were one or two days of rather high wind, and all roads were blocked for a short time. The main highways were open at the end of the month.

Maximum temperature, 34°; minimum, -31°; precipitation, 0.86 inch.

BELLE FOURCHE:

Cold weather prevailed throughout January, but daily temperatures were not so low as in many previous years. The mean temperature for the month was 1°, which is the lowest of record for January, and it is next to the lowest for all months, being surpassed only by the -2° mean for February 1936. There were 28 days with minimum temperatures below zero, 21 of them occurring consecutively. The previous records, established in February 1936, were 24 subzero days in one month, and 21 successive days with minimum temperatures below 0 in a winter season. The maximum temperature was above freezing on only one day, January 3, and it was below 0 on 8 days. There has been no other month in the period of record in which the temperature did not rise above freezing on at least 4 days.

A number of light snows were received, and the total precipitation was 0.08 inch greater than the 29-year average for January. Cultivated fields or crops unprotected by grain stubble or weeds benefitted very little by the precipitation, as practically all the snow was removed by high winds. Highways were blocked with drifted snow on 3 different occasions, and some soil movement occurred.

Visitors included A. L. Baker, U. S. Range Livestock Station, Miles City, Mont., and Director J. W. Wilson, South Dakota Experiment Station, Brookings.

Maximum temperature, 35°; minimum, -22°; precipitation, 0.50 inch.

ARCHER:

The weather during January was cold and dry with a few flurries of snow. The average minimum temperature for the month was -1.55°. The mean temperature was 10.8°. Two cold spells occurred during which the temperature on each occasion dropped to -26°. This was next to the coldest January in the history of the station. The wind velocity was less than usual, therefore but little soil blowing occurred. The snow also aided in preventing soil blowing.

Notwithstanding the extreme weather, livestock in this section are in good condition. Forage generally is sufficient to meet ordinary conditions.

The winter cereals are not promising. The dry fall and continued cold, dry winter have reduced the winter wheat to a rather poor condition. Winter rye, while hardier, has suffered severely from rabbit damage.

Maximum temperature, 46°; minimum, -26°; precipitation, 0.22 inch.

NORTH PLATTE: (Report for the month of December 1936.)

The weather conditions for the month were about normal. The temperature for two days during the first week was below zero. The ground was covered or partially covered by snow most of the month.

The year 1936 broke a few weather records. An all time high in temperature of 111° was recorded on July 24. For the 25-year period 1907 - 31, inclusive, 72 days were recorded with temperatures of 100° or over. The years 1934 and 1936 combined had a total of 64 days of 100° or over. 39 days were zero or below. There were 167 frost-free days or 16 days above normal. The seasonal evaporation was 48.096 inches or 4.531 inches above normal. The evaporation has been exceeded by the three years 1911, 1913, and 1934. Rainfall for the year totaled 13.43 inches, with an accumulated deficiency of 5.42 inches. The seasonal rainfall was 11.11 inches or 3.84 inches below average.

The work of the month consisted mostly of compiling records and preparing the Dry Land and Cereal reports.

Maximum temperature, 55°; minimum, -3°; precipitation, 0.43 inch.

NORTH PLATTE:

Sub-zero weather accompanied by frequent light snows constituted the weather for January. The Weather Bureau at North Platte reports the lowest average mean temperature for January since 1875. The Weather Bureau also reported snow on 11 days, which totaled 0.62 inch of precipitation or 0.23 inch above normal. At the station only three days of the month were of temperatures above zero.

The members of the station staff attended the Organized Agriculture meetings held in Lincoln the first week of January. Superintendent Zook gave a report on "The relation of soil moisture present at seeding time to winter wheat yields under North Platte conditions", and H. E. Weakly reported on "Pump irrigation practices at the station".

The reports for the last year are nearly completed, and plans for spring seeding are in progress. The light snow covering the ground for the last two months has given protection to the winter wheat. Even with favorable weather conditions in the spring, much reseeding will probably be necessary.

Maximum temperature, 44°; minimum, -20°; precipitation, 0.62 inch.

AKRON:

January was cold. Snow that fell late in December remained and was added to, so the ground was covered with from 3 to possibly 5 inches of snow. The coldest January in the history of the station with a mean of 9° was recorded in 1930. The past January promises a mean of about 1° less. Thirteen of the past 31 days have recorded a minimum reading of below zero. The longest consecutive period of below zero weather was 6 days beginning January 19.

The precipitation was dry, powdery snow and amounted to 0.16 inch, equivalent to about 1.5 inches of snow. This is about two-thirds normal for the month.

Wind movement was at a minimum. There were no blizzards, though the dry snow offered a good set-up. Country roads were temporarily blocked only once, about the middle of the month.

The weather was favorable for winter wheat and rye in this section.

COLBY:

January was cold and unsettled. Precipitation in the form of snow and sleet was recorded on 11 days for a total of 0.33 inch, which is slightly above normal. The snowfall was 3.5 inches. The snow drifted badly, but most fields had a light covering nearly the whole month. It was the coldest January since this station was established, and also the windiest. There were no very extremely low temperatures but the maximum temperature averaged 2° below the 23-year mean. The mean temperature was 13° as compared to the average mean of 28°. There were no bad storms. The high winds drifted the snow badly, and three days were dusty with some soil blowing.

The winter wheat appears to be alive. At the station there is practically no growth showing above the ground. In most cases the crowns are covered with fine dirt. Even with a thin covering of snow, the surface soil is not frozen until an inch or two below the surface. This surface layer blows readily on windy days. Beneath this layer the ground is frozen as far down as it is moist in most cases.

Maximum temperature, 57°; minimum, -13°; precipitation, 0.33 inch; snowfall, 3.5 inches; precipitation, 50-year average, 0.26 inch.

HAYS: (Report for the month of December, 1936.)

The weather was generally calm, mild, and very pleasant. There were no storms, not more than half a dozen windy days of which none were heavy enough to cause soil drifting, and the remainder of the month was outstanding because of the extreme absence of wind.

Wheat has made small growth, but is in good condition on all plots. There is sufficient moisture in the soil to carry the wheat for some time, although moisture is badly needed to build up a reserve in the subsoil, which still is dry.

Maximum temperature, 65°; minimum, 9°; precipitation, 0.50 inch. Total precipitation year of 1936, 14.86 inches, by the Weather Bureau gauge, 15.90 inches.

HAYS:

January 1937 was the second coldest January in 44 years at Hays. There have been 14 other Januaries having lower minimum temperatures for one or more days, but there is no record of a January that did not have a higher maximum temperature sometime during the month. In other words, there were no extremely high or extremely low temperatures during the month. The range of temperature was more uniform than usual, and it was lower than usual as indicated by the following comparisons:

The mean temperature for the month was 18.3°, which is 12.1° below normal and only 1.1° higher than the lowest mean temperature for any January in the last 44 years. (Within this period, there are 4 years for which we have no mean temperature record.)

The following table shows temperature readings for January, 1937, also for 1936 and for a period of 44 years:

TEMPERATURES

	Mean	Maximum	Minimum	Mean maximum	Mean minimum
January 1937	18.3	50.0	-11	28.8	7.7
January 1936	26.9	60.	- 1	38.0	15.8
44-years, 1893-1937	30.4	78.	-23	43.1	16.5

A good portion of the precipitation of January 7 fell in the form of a granular sleet, and most of the precipitation of January 29-31 fell in the form of mist, freezing upon arrival at its destination resulting in a beautiful hoar-frost covering over trees, shrubs, stubble, dead grass, and wires. Roads were covered with a very slippery and dangerous layer of ice. And thus, January passed into history.

There was practically no wind during the month. The exception to the rule was a heavy wind that accompanied the sleet storm, January 7. The granular sleet being driven across the fields by the wind, fined the surface soil, reduced the ridges in the wheat fields, and thus weakened the resistance of the fields against soil drifting. This caused considerable alarm, but there has not been sufficient wind since to cause soil drifting on the project or in this vicinity.

Winter wheat has been practically dormant all month, but it is alive and safe. The ice coating causing so much alarm in eastern Kansas has not been sufficiently heavy in this part of the State to damage the wheat.

GARDEN CITY:

January temperatures were somewhat lower than normal, the mean for the month being 19.7° as compared with a normal of approximately 28°. Average maximum for January was 31.9°, normal is 42.7°. Average minimum was 7.4°, normal is 15°. Snow flurries occurred on six different days during the month, although no appreciable amount of moisture was received. Average wind velocity was 9.3 miles an hour. Normal wind velocity for January is 7.1 miles an hour. January 6 with an average hourly wind velocity of 23.6 miles and a temperature of -2° was the most disagreeable day of the month.

Winter wheat on the station has held its own, although unable to make any growth because of the cold weather. Some wheat fields in the county have suffered from soil blowing, and it is likely that soil drifting will become quite general unless moisture conditions become more favorable. A trip to the extreme southwestern corner of the State during the week of January 25 revealed the fact that wheat generally is in fair condition in certain localities, while in other areas wheat has already been damaged by soil blowing. There is also a great deal of difference in the condition of wheat and soil surfaces on adjoining farms, such differences undoubtedly being due to methods used in handling the land prior to seeding.

Lambs in the feeding experiment have made satisfactory gains to date. It will be necessary, however, to discontinue the lambing down of Wheatland experiment by the next weighing date, due to the fact that thousands of birds, mostly Chestnut Collared Longspur, Lapland Longspur and Juncos, have taken the grain. Lambs from that

experiment will be finished in the dry lot. Sorghums that are allowed to stand in the field until midwinter or later usually suffer some damage from birds but never before has the damage been so great as this winter. Large flocks of crows have been coming in during the past few days also and are adding to the damage being done by the more numerous, but smaller birds, that have been here for several weeks. This is the first time in the history of the station that crows have been numerous enough to do any damage. In fact it has been a rare thing to see more than a half dozen crows at a time this far west in the State. Apparently they are gradually moving westward and it is quite likely that we will soon have them to contend with. Thus far they have only been seen in the area during the winter and early spring months. None have nested here.

Maximum temperature, 56°; minimum, -7°; precipitation, 0.13 inch.

TUCUMCARI:

January was unusually dry, cold, and windy. It was the second windiest January in 20 years, 127 percent of normal movement occurring, without any periods of extremely high movement. With a mean temperature 7° below the 32-year average mean, it was the third coldest January on record, but with no temperature below zero. Consistent above-normal wind movement and below-normal temperatures produced these fantastic results.

Livestock are going through the winter in good condition. Wheat farmers report wheat is maintaining life surprisingly well on those fields where fall growth was good. On many poorly prepared fields the crop has deteriorated greatly.

Little soil movement has occurred, but fields are dry and powdery, in condition to blow in the first high wind. The coming spring can be as disastrous as any on record in this immediate vicinity if high winds occur.

Engineers of the Reclamation Service are continuing the preliminary survey of the proposed irrigation project in connection with the Conchas Dam. Lines, as now run, cross the station, indicating that perhaps 100 to 160 acres of station land may be below the ditch, provided the project is approved.

DALHART:

The year started out with one of the windiest days of the winter. The month came to a close with a windy, dusty, disagreeable day. There were some 16 days that caused one to fret rather uneasily thinking that the top might blow off of the soil in this section. There were some 5 or 6 days when soil blowing was sufficiently severe to cause alarm. More fields appear to be 'tied down' than was true in 1934 and 1935. Certain sections are as easily eroded and almost as freely wind eroded as during those springs. Rather unfortunately much of the potential blow soil is not in condition to roughen up, so that the few remaining bad spots could start most of the county to moving via air with a very few consecutive, bad, windy days. The station is in much poorer condition to resist soil blowing than in the preceding years of the drought.

Rabbit injury to Chinese arborvitae is severe. With no green material available for feed the rabbits have eaten small branches from arborvitaes to a height of -- well, much higher than seems possible. Recently they have started to eat broomcorn butts which were scattered as litter under trees to conserve the surface, cultivated soil.

Outside work during the month has consisted of transplanting conifers, when the ground was not frozen, and closing the ends of terraces in the pasture.

With a mean temperature of 25° the month was the coldest January since 1930. In only two years, 1919 and 1930, has the mean temperature been lower than for January this year. This was the windiest January since 1934, which it tied. The maximum temperature for the month was 63° and the minimum was -4°. The precipitation for the month was 0.01 inch.

BIG SPRING:

Climatic conditions during the month of January were rather erratic in regard to temperatures. The first part of the month was very warm; when the first norther hit this section, the temperature dropped 61° in less than 12 hours. Since then there has been a series of warm and cold spells. A slow rain of 0.44 inch was received on January 31.

This rain will help winter wheat temporarily at least, for that which was being grazed had just about stopped growing.

Winter listing and plowing of plots was completed during the month as was also listing of increase fields. Other work consisted of hauling and stacking Sumac fodder for the cattle feeding experiments. Other odd jobs such as hoeing weeds in the evergreen planting and repairing machinery was also accomplished.

LAWTON:

Damp, cloudy, misty, foggy weather prevailed during January. Precipitation recorded on 11 dates amounted to 0.64 inch. The largest amount recorded on any date was 0.12 inch. A mixture of sleet and snow, mostly snow, accompanied by a high north wind fell on the 6th and 7th, covering the ground to a depth of approximately 1 inch. The minimum temperature for the winter, to date, 9° was recorded on the 7th and 8th. Sleet and snow again covered the ground to a depth of about 1 inch on the 21st and 22nd. On the 21st a north wind averaged 23 miles per hour from 8 to 11 a.m., and snow drifted rather badly on the highways. Although but little precipitation was recorded in the rain gauge from each of the snow storms, a fairly good temporary supply of surface moisture was apparent after melting occurred. None of this moisture was lost by runoff.

A good many farmers seem to be concerned about the survival of winter oats and barley, especially where grazing has been heavy. Station plots of oats and barley appear to be in good shape at the present time. Both crops carry enough dead leaf tips to give them a rather bad appearance, but the plants are strong and vigorous. Wheat is also in good condition and should renew spring growth very satisfactorily, if moisture continues to be available.

There were only 2 nights during the month when the minimum temperatures were above freezing. Freezing and thawing and a little precipitation distributed throughout the month has prevented any early spring seedings of oats.

WOODWARD:

January was a month of many days of foggy, misty, rather chilling weather, somewhat hard on livestock though there was only two short periods when the minimum dropped below 10°. Despite the cloudiness there were few days when any precipitation was recorded, and the total for the month was only 0.66 inch. The light precipitation has, however, kept the surface soil nearly constantly moist, and alternate freezing and thawing has made it very dusty. About Woodward there is little danger of extensive soil blowing. The wheat while short is stocky and sturdy. People coming in from over the Plains, however, state that beginning 50 miles west of Woodward they see nothing to prevent most disastrous soil blowing. Even here however, there is in many cases moisture in the top few inches, and cultivation might as a result be unusually effective.

Maximum temperature, 54°; minimum, 0°; precipitation, 0.66 inch.

PENDLETON:

January was an unusually cold month for this section, temperatures were below normal for the entire month. The lowest temperature recorded at the station was -28°. The highest temperature was 38°. Maximum snow depth was about 14 inches. The snow this winter was light and contained very little moisture and drifted badly in many places. High winds in the Adams-Athena-Westn district drifted the snow into the roads and blocked the highways for days, in several places the snow was packed so hard that the rotary snowplows were unable to handle it, necessitating dynamiting the drifts. Much of the snow was blown off the fallow fields and deposited in the roadways, the stubble fields held the snow. No field work was done during January.

High winds the first part of February blocked our road for 10 days, travel now is practically impossible, we need spurs to stay in the seat of the pickup.

Precipitation during January was 1.77 inches, all snow.

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